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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948				
			EXAMINER AWAI, ALEXANDRA F	
			ART UNIT 3663	PAPER NUMBER

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/795,879	Applicant(s) CARVER ET AL.	
	Examiner Alexandra Awai	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 and 48-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 and 48-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 2/16/2006 have been fully considered but they are not in every respect persuasive. With regard to the rejection under 35 U.S.C. § 102 of claim 1, it is not clear from Applicant's arguments why Loftis et al. does not anticipate the newly appended features. Loftis et al. disclose a storage rack comprising elongated tubes with rectangular cross sections for storing nuclear fuel (see Abstract). These tubes are aligned and attached at the corners so that they form an alternating pattern (see Fig. 1) as described in claim 1. Applicant's arguments with respect to substantially amended claims 2-34 have been considered but are moot in view of the new grounds of rejection. Contrary to Applicant's statement on page 18 of the Remarks, Fig. 3 of Soot does not show that the tubes have rounded corners. Rather, the corners of the tubes meet at flat surfaces, which can clearly be seen in the close-up view provided in Fig. 8 (i.e., load-bearing surfaces are actively engaged by rod 39). It is noted that while the Applicant objects to the cited references as not disclosing, teaching or suggesting the claimed limitations, there is no stated objection to the motivation to combine the references.

2. Currently amended claims 1-34 and new claims 48-58 have been examined, claims 35-47 having been cancelled.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 1-34 and 48-58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what relationship is defined by having the various sidewalls of tubes in the container by “substantially aligned” (claims 1, 8, 18 and 48). With regard to claim 28, the statement, “each of the tubes having a plurality of recesses and a plurality of flat load bearing surfaces along at least one corner” is ambiguous because it is not clear whether a single corner is intended to have both recesses *and* flat surfaces. It is not clear from the claims how the weld recited in claim 56 is positioned so as not to be subject to the horizontal bearing load because the weld is presumably coupling components that are subject to this load, and because the direction of the horizontal bearing load (claim 48) is also indefinite.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Loftis et al.

Loftis et al. disclose a storage rack comprising elongated tubes with rectangular cross sections for storing nuclear fuel (see Abstract). These tubes are aligned and attached at the corners so that they form an alternating pattern (see Fig. 1) as described in claim 1. While patent drawings are not drawn to scale, relationships clearly shown in the drawing of a reference patent cannot be disregarded in determining the patentability of claims. See *In re Mraz*, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

6. Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by Soot.

Soot discloses a nuclear fuel storage rack with tubes that are each created from U-shaped elements (Fig. 4) and arranged in an alternating pattern by connections formed at the corners (44) of the tubes. These corners have both recesses and flat, load-bearing surfaces. Rods (e.g., Fig. 6 and Fig. 7) may be considered to be attached to one tube and mounted in the recess of the adjoining tube. While patent drawings are not drawn to scale, relationships clearly shown in the drawing of a reference patent cannot be disregarded in determining the patentability of claims. See *In re Mraz*, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-17, 19-34 and 48-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soot as applied to claim 18 above, and further in view of admitted prior art Bosshard.

Soot teaches an alternating arrangement of square tubes that is equivalent to the developed cell, which is disclosed by the applicant as conventional, as well as the placement of rod segments (Fig. 8) mounted at the corners of the tubes, and the use of welding (e.g., 43) for obtaining additional rigidity. Applicant also states that dry storage systems are typically housed in containers. Note MPEP § 2129 [R-3], which states, “A statement by an applicant during prosecution identifying the work of another as prior art is an admission that that work is available as prior art against the claims.” If the tubes are housed inside the horizontal type of container disclosed by the applicant, it is inherent that the tubes will contact at least one side of the container. As to limitations which are considered to be inherent in a reference, note the case law of *In re Ludtke*, 169 USPQ 563, *In re Swinehart*, 168 USPQ 226, *In re Fitzgerald*, 205 USPQ 594, *In re Best et al.*, 189 USPQ, and *In re Brown*, 173 USPQ 685, 688. The load-bearing surfaces of the tube corners in the design taught by Soot directly abut load-bearing surfaces of adjoining tubes. Soot does not teach that the rods may be hollow and used with cooperating pins.

The hollow rod-pin combination recited in the current claims amounts to no more than a description of the commonplace hinge, having a barrel comprised by two knuckles, each knuckle extending from a separate leaf, where the leaf consists of the sidewall of one of the adjacent tubes. This type of structural connection is notoriously well known. Alternatively, Bosshard provides a teaching for an annular element that connects the corners of tubes in a rack for storing nuclear fuel and into which a pin having a head and body portion is inserted (Figs. 2 and 3). This structure is equivalent to that created by the axially aligned hollow rod and pin combination claimed in the present application because the only difference is which aspects of the connection are made integral as opposed to separable. Additionally, Bosshard discloses that it is considered

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a simple and reliable solution to connect square tubes with lugs in the form of hinges or pivots that are welded to the edges of those tubes and to pass a pin through the lugs to provide lateral support to the tubes (col. 1, lines 7-21). Receiving rods in recesses at the corners of the tubes is structurally equivalent to forming the rods as an integral part of the tube corner. Unless there is something particularly inventive or unexpected about the mode of integration of these parts – and in the present application this is not the case – such a structure is not considered inventive. See *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965). Increasing the number of the hinge-like connections or of the rod-recess connections at the corners is no more than the duplication of parts with predictable and intended effects. See *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

It would have been obvious to one skilled in the relevant art to combine the features (i.e., the various connector assemblies) and teachings (i.e., the use of welding) of the foregoing references to achieve the structures and arrangement claimed because to do so would be a cost-effective use of widely available technology. For example, the joints described by Soot are intended to provide a rigid structure with good resistance to seismic loads (see Abstract), and Bosshard states that having hinge-like connections for fuel storage racks is a simple and reliable choice. To achieve the presently claimed invention, one would only have to replace some of the rod-recess connections of the device taught by Soot with some of the hinge-like connections discussed in Bosshard, and to apply this technology to typical dry storage vessels as disclosed by the applicant. The motivation to make this modification would be to take advantage of the stated benefits of each established technology.

Conclusion

10. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexandra Awai whose telephone number is (571) 272-3079. The examiner can normally be reached on 9:30-6:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AA

April 3, 2006

R Palabrica
for JACK KEITH 4/5/06